R18 Regulation *Subject code:2E7EF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech VII Semester Regular/Supplementary Examinations, November 2022

COMPUTER GRAPHICS
(Professional Elective)

(Computer Science and Engineering)

Maximum Marks: 70 Date:03.12.2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Define Resolution.
2 What are the 3 basic requirements for a line drawing algorithm?
3 Write the transformation matrix to scale double the original image.
4 Define clipping.
5 Distinguish between diffuse reflection and specular reflection
6 Draw a block diagram of the viewing pipeline
7 What is the main source of difficulty in implementing painter's algorithm
8 What are the buffers maintained in Z-buffer algorithm
9 What is morphing?
10 What are key-frame systems

Part-B

Answer All the following questions. (5X10M=50Marks)

11 A. What are the application areas of computer graphics? Explain briefly. 5M
B. What is the principle followed in Flood fill algorithm. Explain the steps in the algorithm. 5M

OR

12 A. List the data structures used in scan-line polygon fill algorithm. Illustrate the procedure with an example 5M
B. Distinguish the raster-scan and random-scan systems 5M

13 A. List the basic transformation techniques. Graphically illustrate their effects. State the corresponding matrix representations. 5M
B. What is the principle of Cyrus-Beck algorithm for clipping a polygon? Illustrate with an example 5M

OR

14 A. Explain the steps involved in the Sutherland-Hodgeman algorithm for polygon clipping. What are its advantages 5M
B. What are the steps involved in the reflecting the object about an arbitrary axis using 2-D transformations. 5M

15	A. Define the blending function for B-Spline curve. Explain the terms involved in it	5M
	B. What are the steps involved in rotating a 3-D object about an arbitrary axis in 3-D space. Explain about the effects at each intermediate stage of the processing	5M
	OR	
16	A. Derive the matrix form for the rotation about z- axis in 3-D space.	5M
	B. Compare the characteristics of Bazier and B-spline curves.	5M
17	A. What are the steps involved in depth buffer algorithm. What are its advantages and disadvantages?	5M
	B. Write briefly about polygon rendering methods	5M
	OR	
18	A. Compare the scan-line and depth sorting algorithms for visible surface detection	5M
	B. Explain with graphical illustrations, the BSP tree methods for visible surface detection	5M
19	Explain in detail about the graphical languages followed in achieving the animation effects.	10M
	OR	
20	A. Discuss the characteristics of key-frame animation.	5M
	B. Distinguish between procedural controlled and constraint-based controlling.	5M